Application of Circle-to-Sphere Resonance in Zero Point Energy Research

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Overview:

This paper presents a conceptual framework for how circle-to-sphere wave confinement models-derived from fluid resonance systems-can be used to better understand and potentially model zero point energy (ZPE) fields.

Theoretical Background:

Zero point energy represents the lowest energy state in a quantum system, a ground state of persistent fluctuations. Understanding ZPE involves not only high-energy physics but also the resonant behavior of confined fields.

The circle-to-sphere harmonic resonance model proposes that ripples in confined circular surfaces (like water in a bottle) can be extrapolated into spherical harmonic functions. These patterns mirror quantum orbital wavefunctions and can be used to model standing waves inside vacuum-like structures.

Application to ZPE:

1. Spherical standing waves represent the basis of many quantum vacuum models, including Casimir-like cavities and quantum harmonic oscillators.
2. By modeling confined energy fields using low-frequency spherical harmonics, we can explore ground-state resonance patterns.
3. This analog allows for:

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- Experimental modeling of field collapse and containment
- Study of vacuum fluctuation modes within bounded geometry
- Energy concentration mapping for resonance nodes

Conclusion:

The mapping of 2D wave patterns to 3D spherical fields offers a macroscopic analogy to the microscopic behavior of ZPE fields. Through this model, we can investigate harmonic containment, boundary-induced fluctuation, and energy distribution-all critical components in understanding and simulating zero point energy.

Keywords: Zero Point Energy, Spherical Harmonics, Field Containment, Wavefunction Collapse, Quantum Vacuum, Minh Malcolm Hai Nguyen